REPUBLIC OF ESTONIA
MINISTRY OF EDUCATION
AND RESEARCH

Deutscher Bundestag

Enquete-Kommission
Berufliche Bildung in der
digitalen Arbeitswelt

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Vocational Training in the Digital Work Environment

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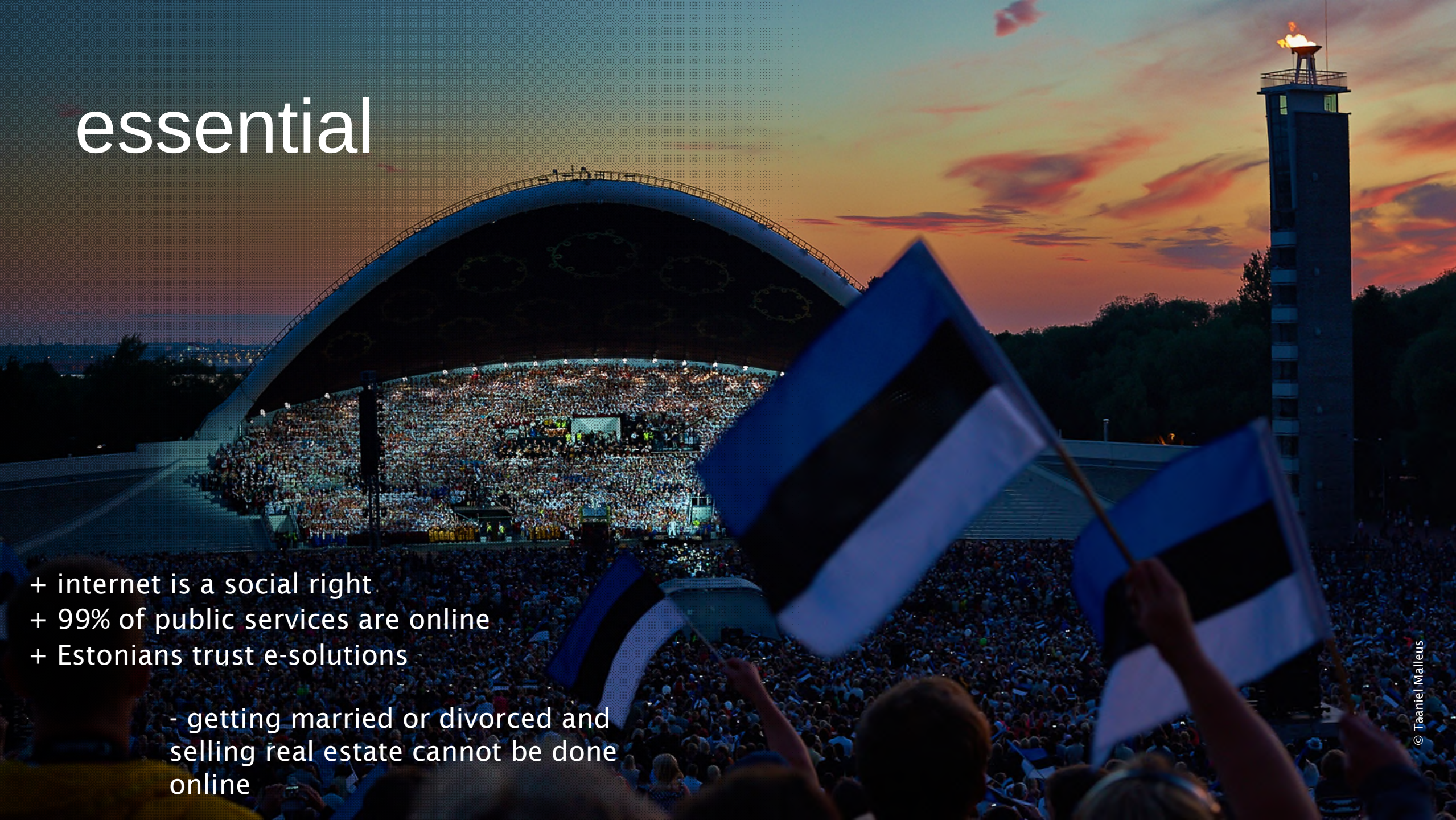
a modest country that extends beyond its borders

+ population: 1.3 million
+ area: 45,339 km2
+ currency: Euro
+ member of: EU, NATO, WTO, OECD, DIGITAL 9
+ ICT sector: 7% of GDP
+ National budget for 2019: 11.1 billion

essential

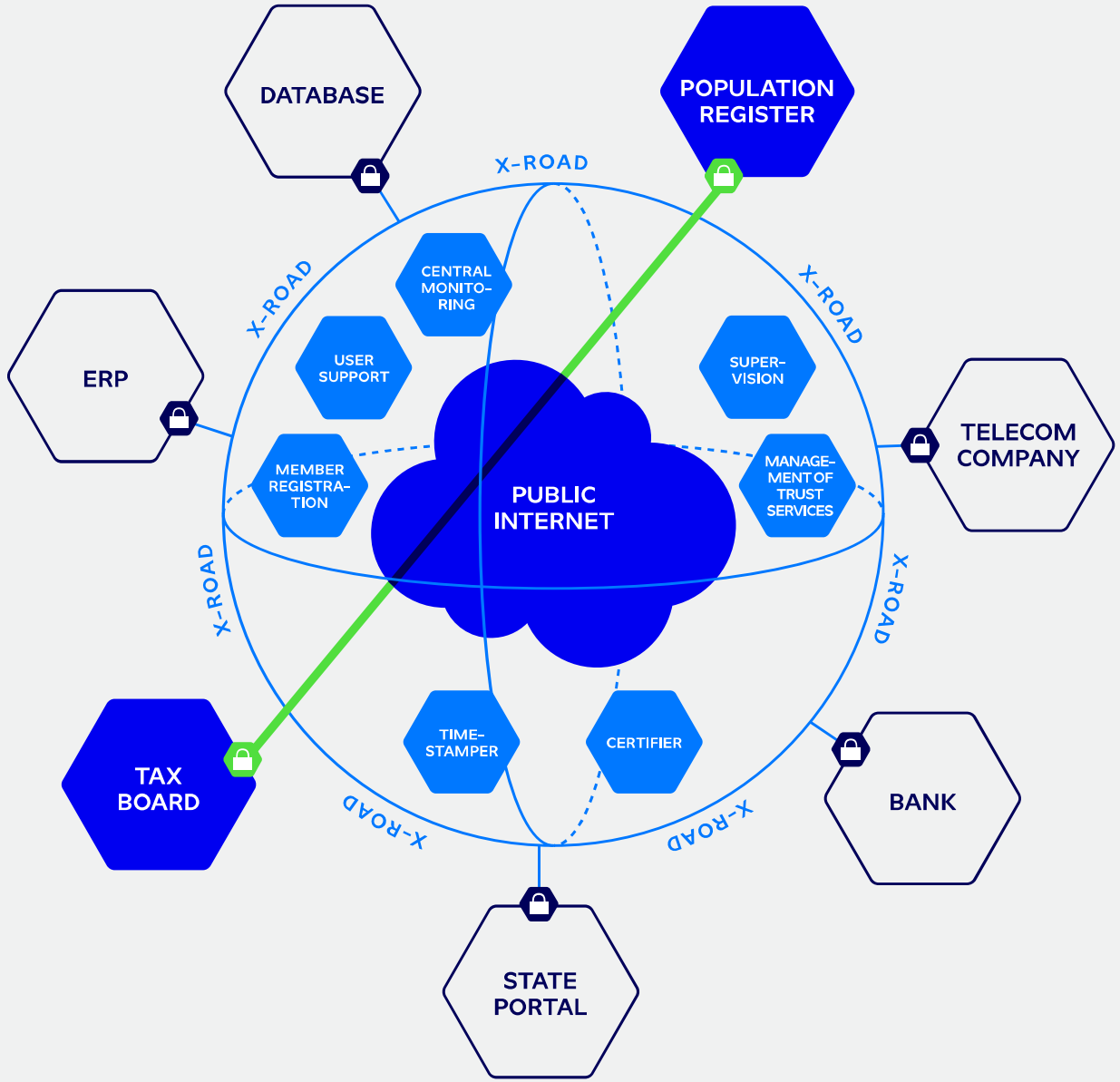


+ internet is a social right
+ 99% of public services are online
+ Estonians trust e-solutions

- getting married or divorced and selling real estate cannot be done online

exchange

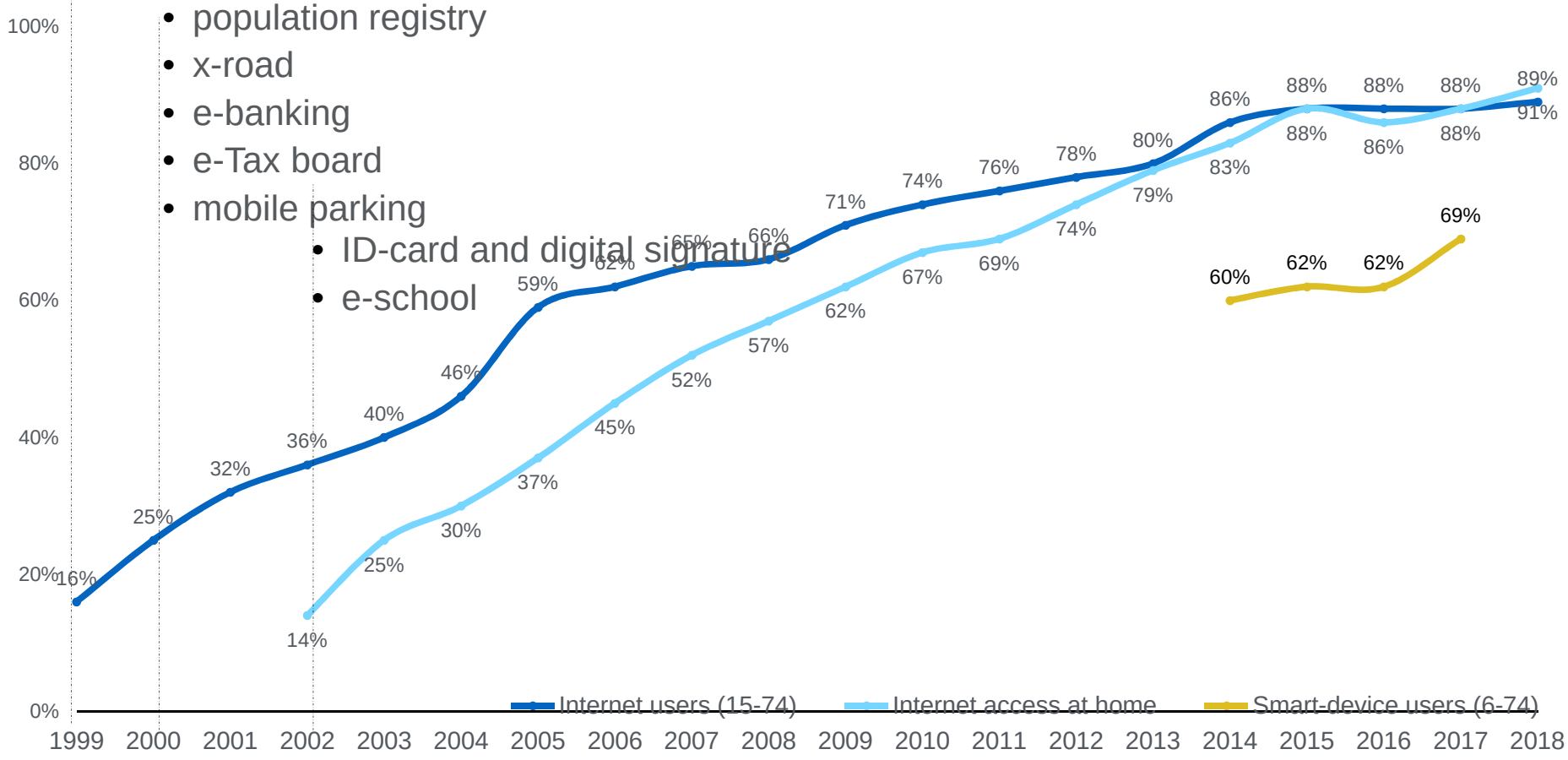
The busiest highway of e-Estonia – X-Road from 2001.



+ saving 1407 years annually
+ 651 institutions and enterprises
+ 504 public sector institutions
+ 2691 different services
+ over 900 million transactions per year
+ exported to Finland, Kyrgyzstan, Namibia, Faroe Islands, Iceland, Ukraine, and other countries

e-Estonia

- Tiger Leap 1997 - 2013: PPP, 90% schools connected to internet
  - population registry
  - x-road
  - e-banking
  - e-Tax board
  - mobile parking
    - ID-card and digital signature
    - e-school



ease of doing business

Simplest and fastest business environment.

+ a few hours to start a company
+ hassle-free e-taxation
+ full automatization in tax reporting by 2020
+ e-Residency – Estonian e-services to every world citizen

education system in a nutshell

Doctoral Degrees

Master's Degrees (2 years)

Diploma of Professional Higher Education

Bacherlor's Degrees (3 years)

Technical Vocational College (2-5 years)

General Upper Secondary Education
Ages 16-19

Vocational Secondary Education
Ages 16-19

Basic Education (Primary and Lower Secondary)
Ages 7-16, COMPULSORY

Early Childhood Education
Ages 3-7

EHIS Estonian Education Information System

contains data about

+ early childhood education
+ general education
+ vocational education
+ higher education
+ hobby education
+ state examinations;
+ adult education

The easiest way to track students.

was established in 2004
contains personalized (live) data
cooperates with over 20 different information systems
has apprex. 50 live services open

a digital focus in lifelong learning strategy

digital skills

empowering learning

modern infrastructure

Background – educational technology research, development and training activities since 1990s
2005 Estonian e-Vocational School consortium – systemic teacher training, e-learning development in VET

Centre for Educational Technology was established in 1996

ICT skills for all

Training:
102 697 people trained, 10% of adult population
70% started using

Access:
550 Public Access Internet Points

Budget:
3,3M euros

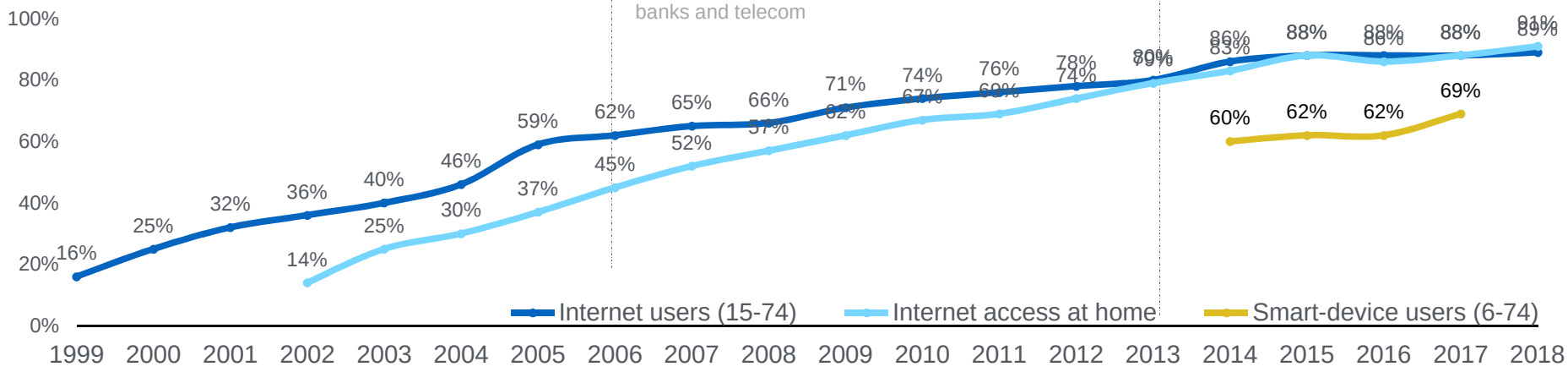
Training:
100 000 people trained.
Internet users +9% in age group 45+.

2006 - 20 000 ID-card users
2010 - 400 000 ID-card users.

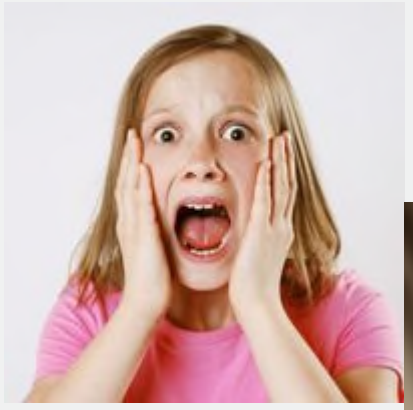
Budget:
3,3M euros
1.2M euros European Regional Fund
+1.1M euros private companies:
banks and telecom

Digital Agenda 2020

Activities in Gov Programmes - "Raising Public Awareness about the Information Society" etc



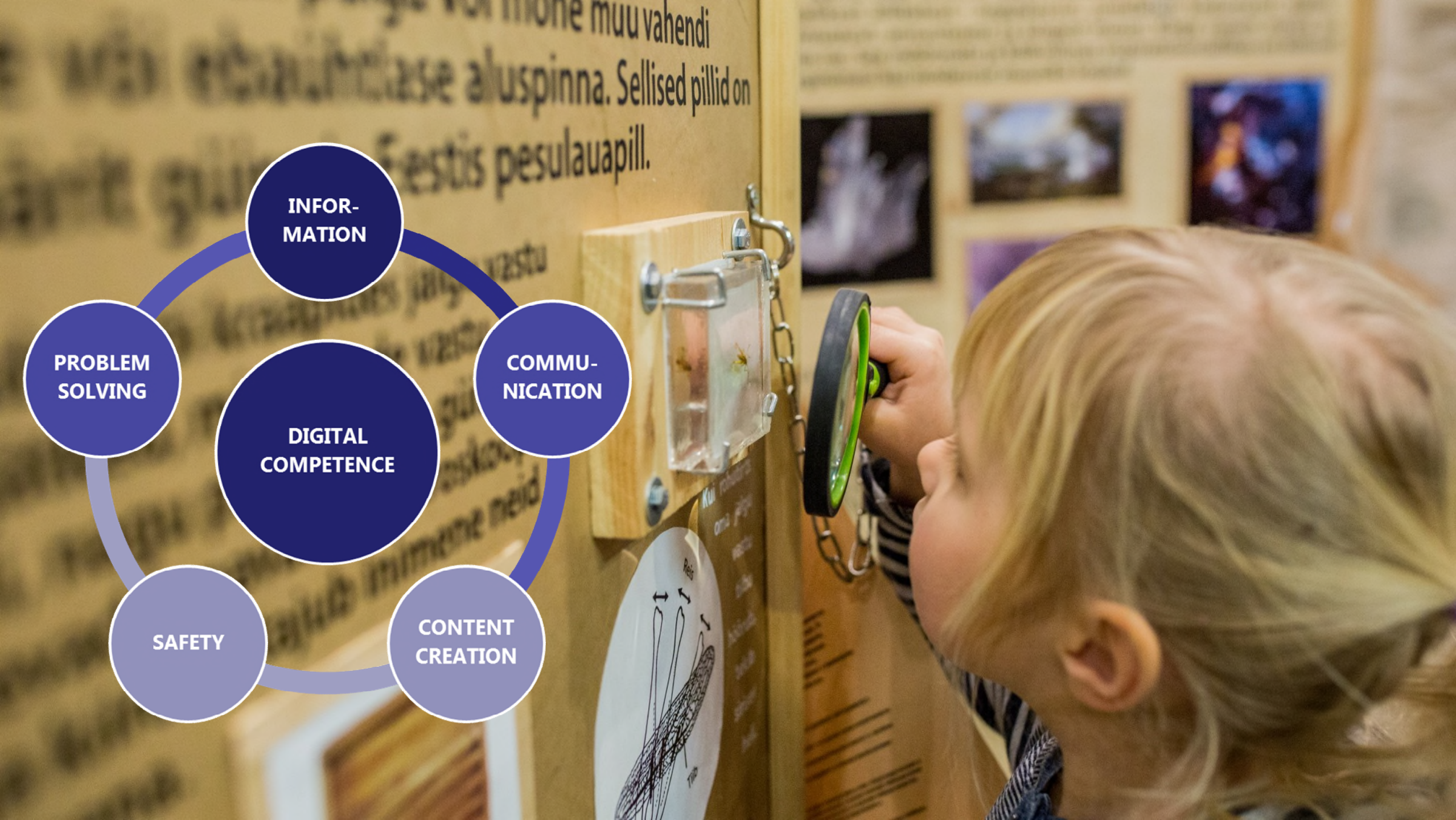
digital skills?



LIVE
Digital Competence

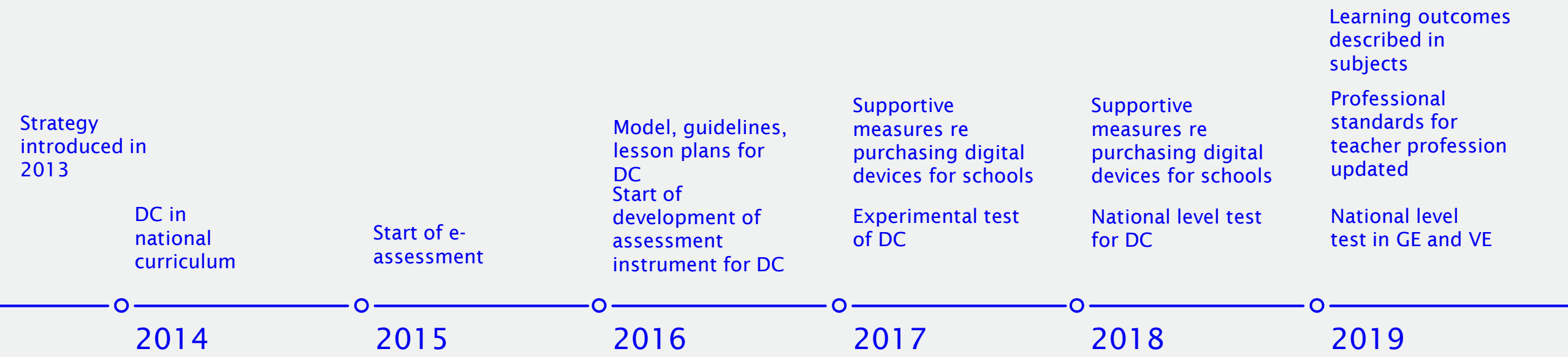
WORK
Job-Specific Digital Skills

CREATE
Technological Literacy ie ability to create technology


INFOR-
MATION
COMMU-
NICATION
CONTENT
CREATION
SAFETY
PROBLEM
SOLVING
DIGITAL
COMPETENCE

roadmap to digital competence (DC) for all

Ongling free training for teachers and school leaders



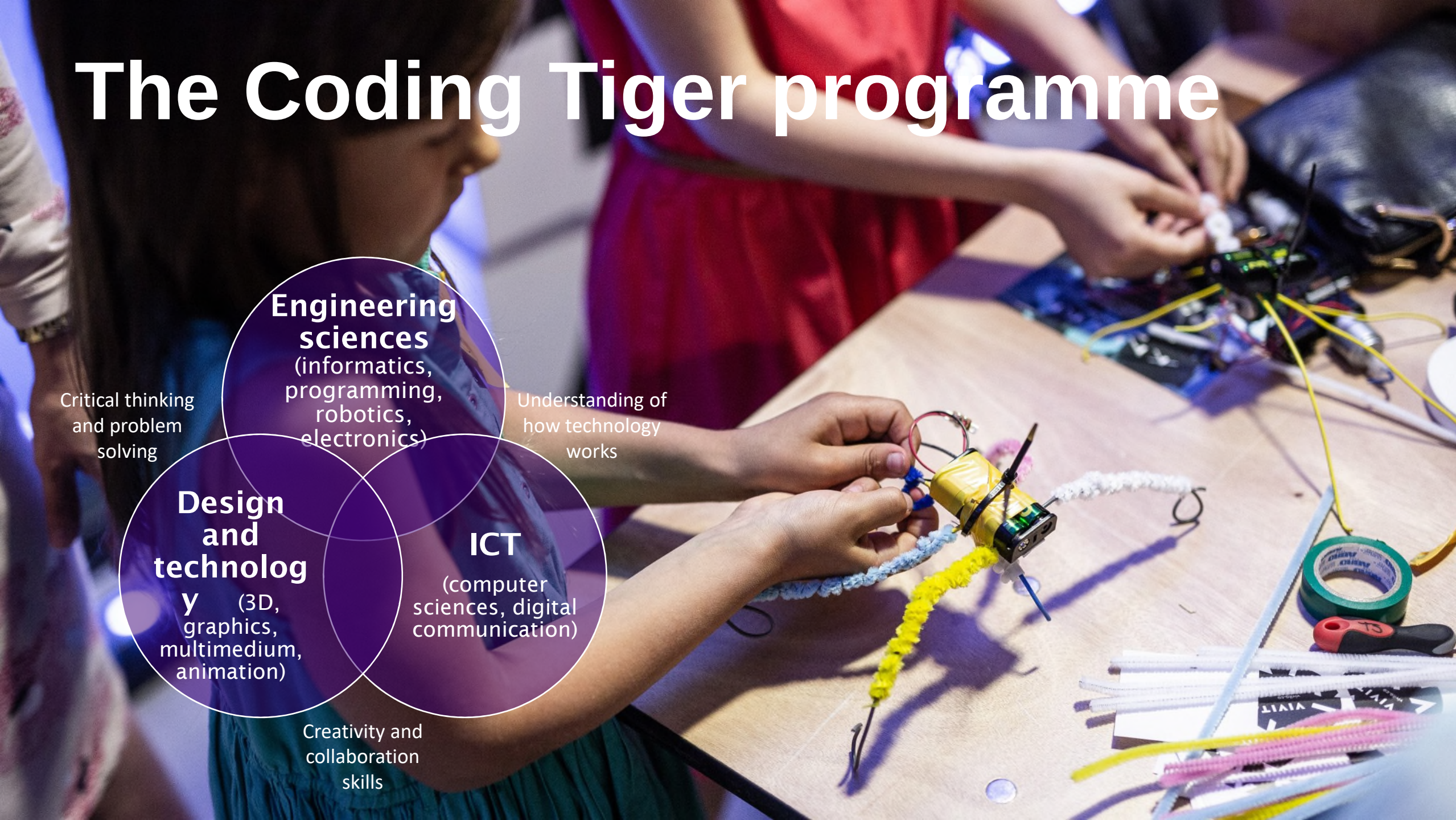
MODEL FOR THE DIGITAL COMPETENCE OF STUDENTS

HITSA
Hariduse Infotehnoloogia Sihtasutus

The model describes the components of digital competency at the end of basic school stages, upper secondary school and vocational school. In the academic year 2017-2018, the standard-determining test on digital competency will be conducted for the first time for the final year students of basic schools and upper secondary schools.

Component skill	Level 1 - stage 1 of basic school	Level 2 - stage 2 of basic school	Level 3 - stage 3 of basic school	Level 4 - upper secondary school and vocational school
1. Management of information				
1.1. Searching for and browsing of information - based on the goal, the students determine their need for information and choose appropriate methods for searching and browsing digital information				
	Students find the necessary sources of information by using a search engine and keywords, browse them and select (filter out) appropriate digital materials with the help of a tutor.	Students find the necessary information from different sources of information by applying various search methods: keyword search, ranking, filtering, tag cloud.	Students vary the search methods according to the objective, use alternative search methods where necessary, and justify the superiority of the chosen search method.	Students: 1) determine their information needs and find appropriate information for purposes related to personal development, learning, handling social and problem situations, research, etc.; 2) test, compare and design effective search methods which cover different publications and information systems.

The Coding Tiger programme



WHY?

educate to create

- Pre-School Education
  - Contemporary way of learning/teaching
  - Creativity, problem solving skills, cause-results
  - Attitute and awareness towards IT (children and parents)
- General Education (K12)
  - Contemporary way of learning/teaching
  - Awareness AND understanding of IT as a tool and profession
  - Simplifying processes, way of expressing oneself, creativity, problem solving skills
- Vocational and Higher Education

  The above-mentioned +
  - IT skills in each profession
  - Understanding of programming as a tool in each sector
  - IT as a profession

Impact by parents!

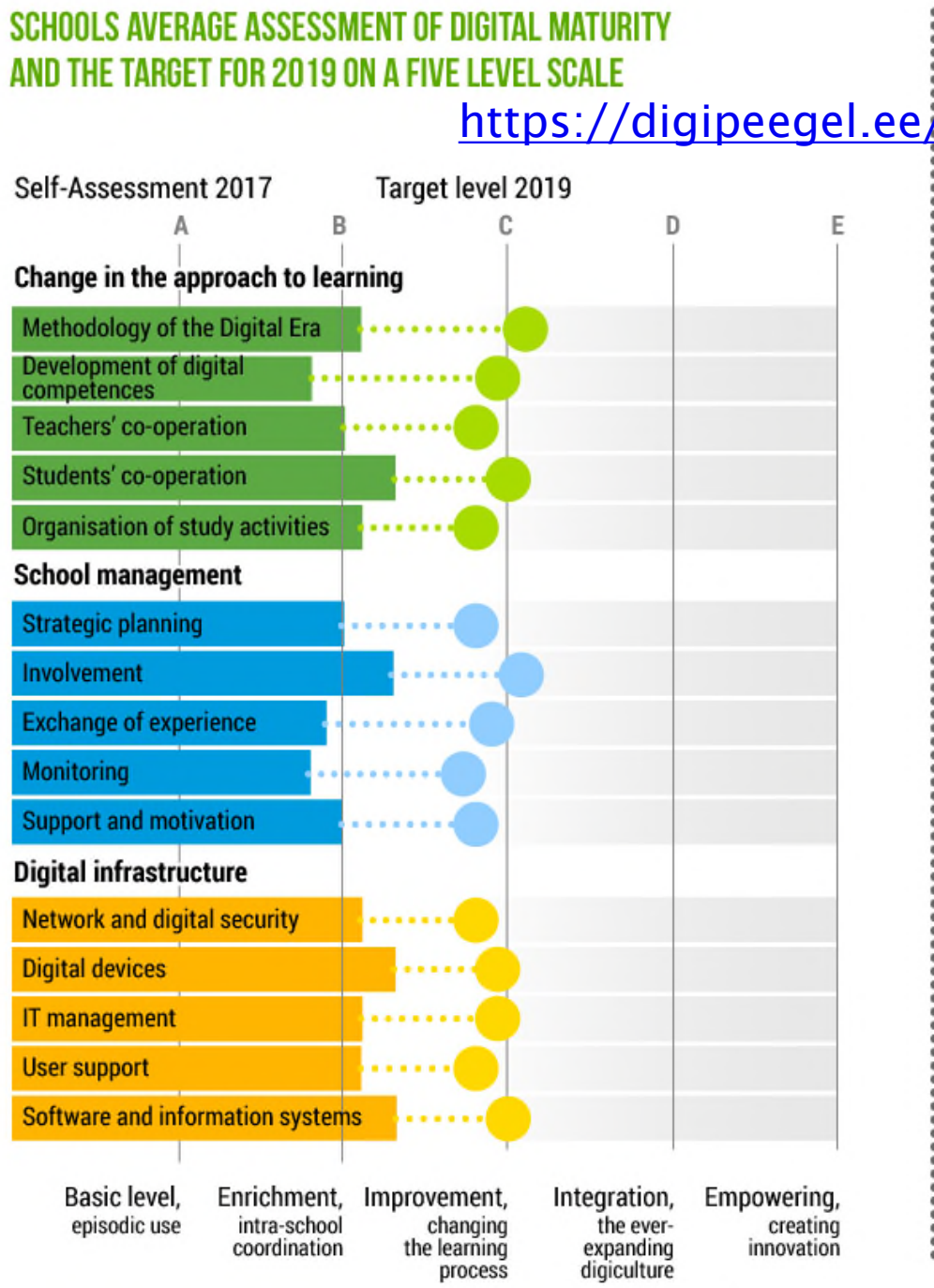
Confidence from non-formal education

empowering education

digital learning materials available in all subjects

digital learning devices

fast and secure internet connectivity



cooperation with startups

fastest growth in sector

+ governmental support for startups
+ sophisticated ecosystem

linking research with policy

Replacement demand

Expansion demand

Shortage Surplus

Graduate supply

OSKA

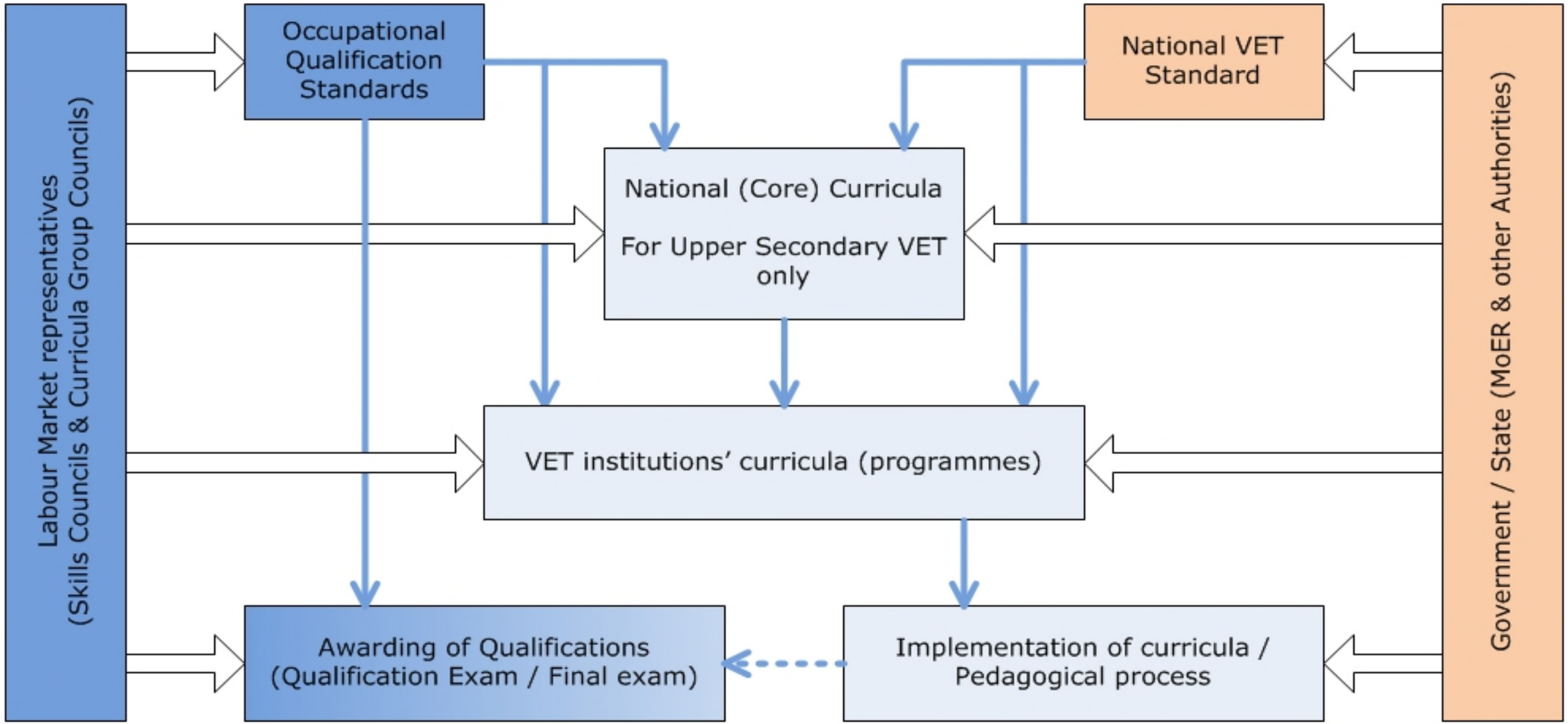
How many people

which skills are needed in our labour market today and in near future?
Where and how to acquire those skills?

What should be changed in today's educational system and in lifelong learning system to meet the future needs?

anticipation and monitoring system for labour and skills demand

VET programmes development



Vocational Education and Training

32 VET and 6 professional HE institutions

- ICT competence is one of the key competences set in VET Standard - the ability to use ICT tools and digital media skilfully and critically;
- 19 VET institutions offer ICT related programmes on Information and Communication Technologies ISCED F-2013 On EQF/NQF level 3-5
- Software developer
- Junior Software Developer
- Systems administraator
- Senior telecommunication technician
- Junior UX design specialist
- Junior IT systems specialist

digital developments in VET

- **2000** the Estonian Information Technology Foundation

- **2005 Estonian e-Vocational School consortium**, with the aim of developing e-learning and cooperation in vocational education, Network of educational technologist at VET schools

- **2006-2012** development of **e-learning materials and teacher training** (learning by doing)

- **2013-2019** The main activities include:

1. Advancing digital skills among students and teaching staff
2. Information Systems: development and support
3. Infrastructure: support and development
4. Promotion of ICT education at all EDU levels
5. Promotion and awareness-raising for use of ICT in education

recent initiatives in VET

Effective use of modern
digital technology
upon learning and teaching,
open call for VET institutions
to aquire simulators and
software solutions

IT Academy (2012+) Study IT in Estonia

Co-operation program between government, universities and industry
Annual budget 3,2 million euros.

Main objectives:

- To improve the international competitiveness of ICT studies;
- To fulfill the needs of ICT industry for quality graduates;
- To support the growth of Estonian economy.

Main activities in VET – **curricula development and piloting software developer NQF 5**

lessons learnt

+ always answer the questions „WHY“
+ transparency helps
+ be the boldest
+ data driven policy-making

challenges

+ proceed with digital transformation
+ new learning content
+ technological literacy for all students
+ women in IT
+ open data

Thank you!

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